

**Low Energy Optical Conductivity of $\text{Yb}_4(\text{As}_{1-x}\text{Xp}_x)_3$
($\text{Xp} = \text{P, Sb}$)**

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To investigate the anomalous transport property and the electronic structure near the Fermi level of Yb_4As_3 , we have measured temperature dependence of reflectivity spectra of $\text{Yb}_4(\text{As}_{1-x}\text{Xp}_x)_3$ ($\text{Xp} = \text{P, Sb}$, $x = 0 - 0.24$) in the photon energy range from the far-infrared to the vacuum-ultraviolet. The optical conductivity spectrum due to carriers absorption (Drude-curve) strongly changes with changing temperature. Above 200 K, the Drude-curve with large effective carrier density (N_{eff}) and short relaxation time (τ) is commonly observed in all $\text{Yb}_4(\text{As}_{1-x}\text{Xp}_x)_3$. On the other hand, below 60 K in Yb_4As_3 , the Drude-curve changes to that with small N_{eff} and long τ . Simultaneously, a peak with an energy gap (charge gap) at 0 eV appears at 15 meV. The charge gap appears coincident with the growth of the spin-correlation on the Yb^{3+} one-dimensional antiferromagnetic chain along one of four equivalent $\langle 111 \rangle$ chains. Then the additional peak is considered to refer to the electronic structure on the Yb^{3+} chain, i.e., the charge gap appears at low temperature on the Yb^{3+} chain.